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(54) Crawler

(57) A crawler 11 for inspecting and servicing the undersides of vehicles and machinery comprises a platform 12 mounted on castors, the platform being moulded from plastics material and having concavely-curved recess 16 in its upper surface to receive at least a part of the back of the person lying on the platform making the crawler comfortable to lie on. The castors are partially let into the underside of the platform to reduce the overall height of the crawler. Lamps are located in recesses on each side of the region of the recess 16 which receives the users head, for illuminating the work area.

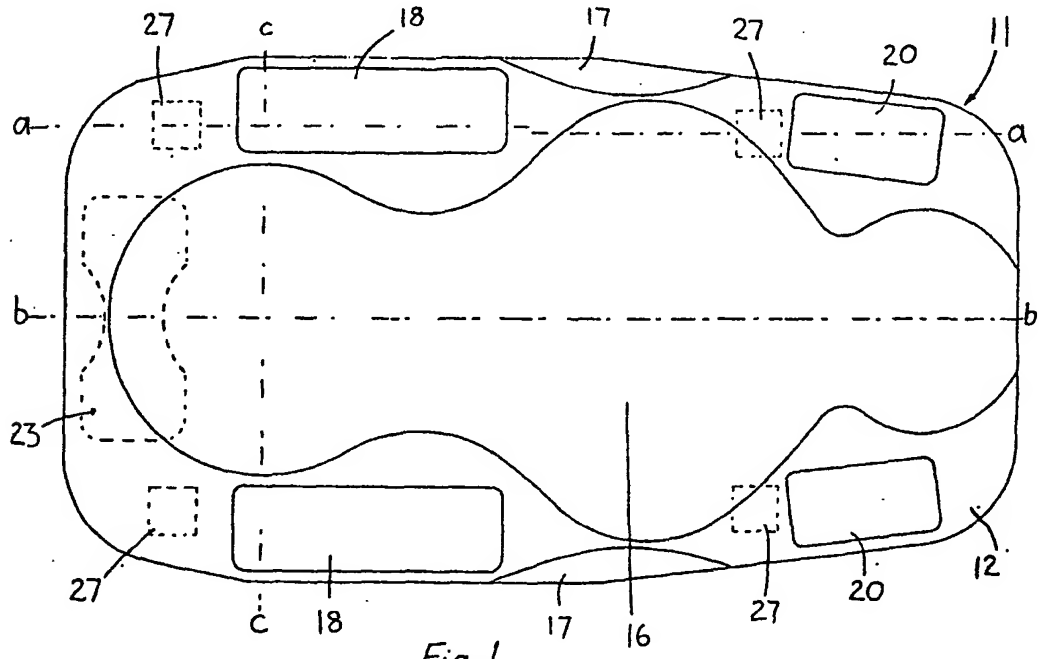

Fig 1

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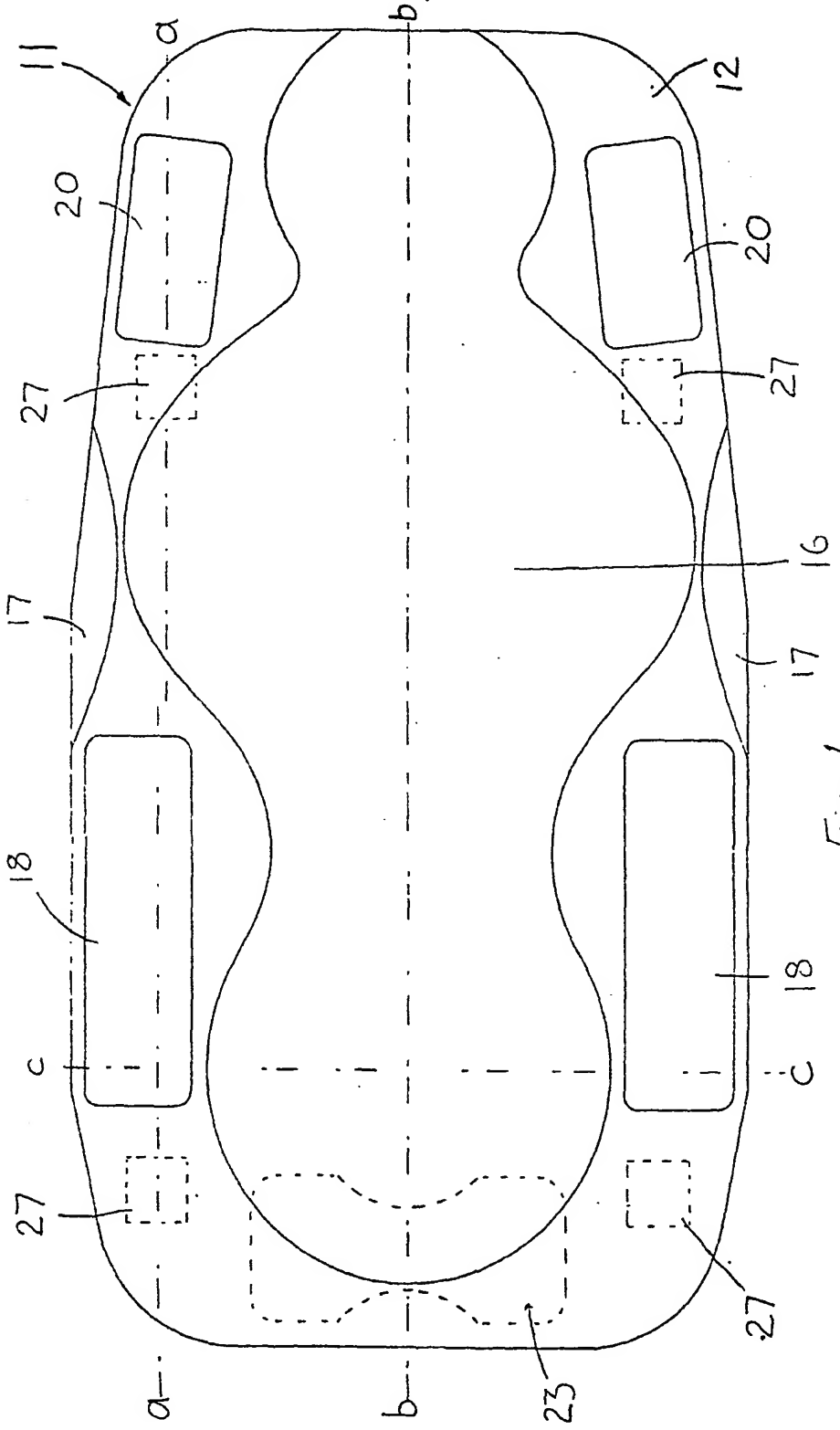

Fig 1

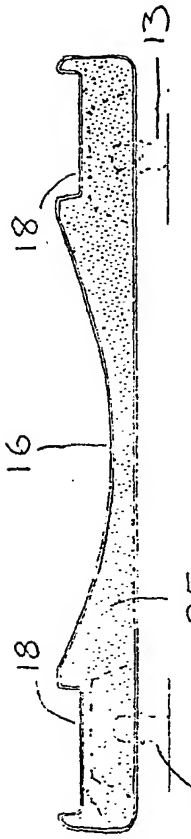

Fig 4

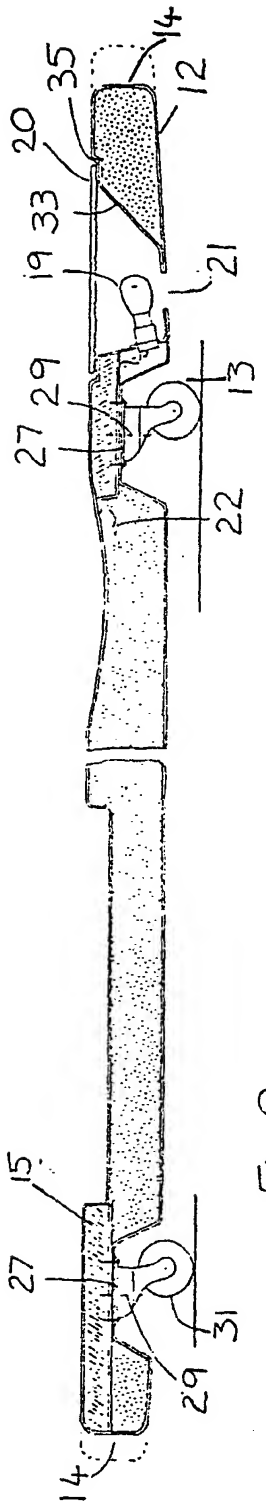

Fig 2

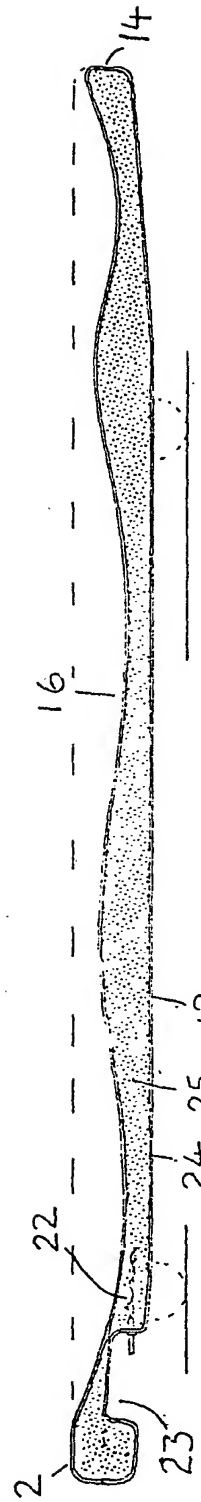

Fig 3

SPECIFICATION

Crawl r

This invention relates to crawlers or creepers on which a mechanic lies to carry out inspection and servicing of the underside of vehicles or other equipment.

A known crawler comprises a flat platform on castors. The platform is made from four parallel spaced longitudinal wooden slats mounted on two transverse cross beams. The inner pair of slats extend at one end beyond the outer pair and carry a pad which forms a headrest. Castors are mounted on the underside of the cross beams.

The user of this type of crawler lies on the slats which are on the cross beams supported by the castors. Hence the overall height is large and a considerable ground clearance to the underside of the vehicle or machinery is needed for the user to be able to work. The wooden slats are uncomfortable. Any further padding increases the effective height of the user above ground level as indeed does the padded headrest. The slats are difficult to clean particularly if liquids are absorbed by the wood and dirt gets lodged between the slats. There disadvantages mean that frequently the known crawlers are not used even when available.

The present invention provides a crawler for inspecting and servicing the undersides of vehicles and machinery comprising a platform mounted on rolling supports, the platform having a concavely-curved recess in its upper surface to receive at least a part of the back of a person lying on the platform. This crawler may have one or more than one concavely-curved recessed areas making up the recess and the recess may receive part or all of the back and/or the head of the user when lying down. The user lying on the recess is therefore at a lower level than he would be if lying on a flat platform so providing more headroom available for work space. Additional recesses may be provided at the edge of the crawler to permit greater freedom of movement for the users arms.

The concave recess fits the shape of the users back more closely than the slatted surface of the known crawler and is therefore more comfortable to lie on even without using padding which can easily become damaged.

The rolling supports are preferably mounted on the underside of the platform so that the mountings lie at least partially outside the bounds of the recess. This positioning minimises the distance between the top of the mounting and th top of the platform. The platform may be reinforced internally at points of stress e.g. above where the castors are mounted. Preferably the uppermost point of the mountings will lie above the level of the lowermost point of recess thus supporting the user at a lower l vel than possible on a flat platform.

It is preferable for at least the tops of the rotating parts of the rolling supports to lie above the level of the underside of the platform in the region of the recess. This means that the ground clearance of the platform can be less than the diameter of the rolling supports. To achieve this with a thick platform it is preferable to form individual recesses for each rolling support in the underside of the platform.

The rolling support may be of various forms, for example wheels, castors or rollers, but preferably castors. Castors enable the crawler to be moved along the ground in any desired direction. Castors can be of a type with a mounting plate at the top lying perpendicular to the pivot axis. The construction reduces the depth needed for mounting the castor on the platform.

The platform can be made in one or more pieces. It is preferably made from a durable easily cleanable plastics material such as glass fibre reinforced plastic material, polystyrene, polypropylene, ABS or polycarbonate although it could be made from other material such as metal, wood etc., or a combination of materials. The plastics material may be moulded by vacuum or injection moulding. It may be made as a shell having an upper and lower skin forming the upper and lower surfaces of the platform. These may be joined after moulding by welding, bonding or glueing. It may be filled with foamed plastics material, for example polystyrene foam or more preferably polyurethane foam for strength and rigidity and may be reinforced internally for example with wood blocks, strips of metal or plastics material. If the platform is formed by injection moulding, it may be moulded as a single piece with cavities in the underside to save material.

The platform may be provided with one or more additional recesses in its upper surface. These recesses can be used for holding tools, nuts and bolts and other components which would otherwise have to be carried separately or left on the ground where they might be lost or difficult to find. These recesses are preferably situated so as to be easily accessible to the user, for example one each side of the main concavely curved recess. They preferably have steep sides to prevent the contents coming out of the recesses accidentally.

One or more light sources may be provided on the crawler. Each light source may be located in a recess in the upper surface of the platform. The light source or sources are preferably protected by transparent lenses or plates. By incorporating light sources into the platform there is no need for separat light sources which would have to be carried separately and therefore would not b so readily available. The position of the light sourc s can be chosen so as to minimise shadows on the

work area, for example two light sources may be provided, one each side of the part of the platform which receives the user's head. The light sources may be electric lamps and may be powered by electricity from batteries or from the mains. Provision may be made in the platform for fitting batteries to be connected to the map or leads may be provided for connecting the light sources to an external battery, for example the battery of the vehicle which is being serviced. If the lamp is to be powered by mains electricity a transformer may be provided on the platform or leads may be provided for connecting the lamp to an external transformer. If an electric cable is provided for connecting the lamp to an external power source, a recess may be provided in the underside of the platform for storing the cable when not in use. Ventilation holes may be cut in the platform to assist the cooling of the light bulbs.

An embodiment of the invention is described below with reference to the drawings:—

Figure 1 shows a plan view of a crawler in accordance with the invention;

Figure 2 is a cross-section on the line a–a of Fig. 1;

Figure 3 is a cross-section on the line b–b of Fig. 1; and

Figure 4 is a cross-section on the line c–c of Fig. 1.

The drawings show a crawler 11 for inspecting or servicing the undersides of vehicles or machinery. This crawler comprises a platform 12 and four castors 13 mounted on the underside of the platform.

The platform is made from two shells moulded from glass reinforced plastic material 24 and joined by bonding along the edges 14 with the same plastics material to form a hollow body. The platform can alternatively be made from two shells vacuum moulded from sheet plastic material and joined by welding along the edges. The platform is strengthened by wood blocks 15 held within the platform above where the castors are to be mounted. The remainder of the interior is filled with foamed plastics material 25.

The platform is provided in its upper surface with a central smooth recess of a shallow concavely-curved shape 16. This recess is shaped to receive the head and torso of the user. The recess is narrow and fairly deep in the region that receives the user's head, deeper and wider in the shoulder region, narrow and shallower around the waist and deep again for the buttocks.

The castors 13 are mounted substantially outside th bounds of the central recess. Each castor is mounted in a separate recess in the underside of the platform, the castor b ing of the type that has a mounting plat 27 perpendicular to the pivot axis 29 of the castor. The castors ar mounted so that they are free to turn through 360° about the pivot axis so that the crawler can be moved in any desired direction on the ground. The castor wh els 31 are mounted on horizontal axles and project partially below the base of the platform.

Two recesses 17 are formed at the edge of the platform to provide freedom of movement for the user's upper arms.

Two sheer-sided recesses 18 are provided in the upper surface of the platform as tool and equipment trays. These are situated either side of the waist region of the central recess and are of a similar depth.

Two lamps 19 are located in further recesses 33 in the upper surface of the platform, one each side of the head region of the central recess. The lamps are protected by horizontal lenses 20 lying flush with the platform surface. The lenses are secured to rebates 35 moulded in the upper shell around the edges of the recesses 33. Ventilation holes 21 are provided in the underside of the platform. The lamps are connected to leads 22 that run inside the shell for the length of the platform to a cable storage recess 23. This recess is in the underside of the platform where a cable for connection to an external power source is stored when not in use.

CLAIMS

1. A crawler for inspecting and servicing the undersides of vehicles and machinery comprising a platform mounted on rolling supports, the platform having a concavely-curved recess in its upper surface to receive at least a part of the back of a person lying on the platform.

2. A crawler according to claim 1 in which the rolling supports have mountings which secure the supports to the platform, the mountings lying at least partially outside the bounds of the recess.

3. A crawler according to claim 1, in which the rolling supports have mountings which secure the supports to the platform, the uppermost point on the mountings lying above the level of the lowermost point in the recess.

4. A crawler according to any of the preceding claims in which the tops of the rotating parts of the rolling supports lie above the level of the underside of the platform in the region of the recess.

5. A crawler according to claim 4 in which the rolling supports are mounted in individual recesses in the underside of the platform.

6. A crawler according to any of the preceding claims in which the platform is moulded from plastics material.

7. A crawler according to claim 6 in which the platform comprises a shell of plastics material having an upper and a lower skin which constitut the upper and lower surfaces of the platform.

8. A crawler according to claim 7 in which the shell is filled with foamed plastics material.

9. A crawler according to any of the preceding claims in which at least one further recess is provided in the upper surface of the platform for holding tools.

10. A crawler according to any of the preceding claim in which at least one light is located in the upper surface of the platform.

11. A crawler according to claim 11 in which two lights are located in the upper surface of the platform, one on each side of the part of the platform which supports the user's head.

12. A crawler substantially as hereinbefore described with reference to the accompanying drawings.

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